

In The Matter Of:
Public Service Commission of South Carolina
Requested by SC Office of Regulatory Staff

Ex Parte Briefing
April 16, 2014
Solar Potential in SC

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Solar Potential in SC

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1 BEFORE THE PUBLIC SERVICE
2 COMMISSION OF SOUTH CAROLINA
3 COLUMBIA, SOUTH CAROLINA

4 - - -

5 ALLOWABLE EX PARTE BRIEFING [ND-2014-12-E]:
6 Requested by South Carolina Office of Regulatory
7 Staff - Solar Potential in SC

8 - - -

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10 TIME: 2:05 p.m.

11 LOCATION: Public Service Commission of South
12 Carolina
13 101 Executive Center Drive
14 Columbia, SC

15 REPORTED BY: Christina L. Essi,
16 Registered Professional Reporter

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18 A. WILLIAM ROBERTS, JR., & ASSOCIATES

19 Fast, Accurate & Friendly

20 Charleston, SC Hilton Head, SC Myrtle Beach, SC
21 (843) 722-8414 (843) 785-3263 (843) 839-3376

22 Columbia, SC Greenville, SC Charlotte, NC
23 (803) 731-5224 (864) 234-7030 (704) 573-3919

Solar Potential in SC

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1 COMMISSIONERS PRESENT:

2 G. O'Neal Hamilton, Chairman
3 Nikiya M. "Nikki" Hall, Vice Chairman
4 John E. "Butch" Howard
5 Elizabeth B. "Lib" Fleming
6 Swain E. Whitfield
7 Comer H. "Randy" Randall
8 Brent L. McGee

9 ADVISOR TO COMMISSION: Joseph Melchers, Esq.

10 APPEARANCES:

11 DUKES SCOTT [Executive Director/Office
12 of Regulatory Staff] and GRANT REEVES [President/
13 South Carolina Solar Business Alliance, LLC],
14 Presenters, representing the South Carolina Office
15 of Regulatory Staff

16 JAMES J. CORBETT, Esq., Neutral
17 Designee/Certificator
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**Ex Parte Briefing - April 16, 2014
Solar Potential in SC**

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1 P R O C E E D I N G S

2 CHAIRMAN HAMILTON: We'll call the ex
3 parte to order and we'll ask Attorney Melchers if
4 he would please read the docket.

5 MR. JOSEPH MELCHERS: Thank you,
6 Mr. Chairman.

7 Commissioners, we are here pursuant to
8 a notice of request for an allowable ex parte
9 briefing. The requester was the South Carolina
10 Office of Regulatory Staff and it was requested to
11 be today here in the commission hearing room at
12 2:00 p.m. And we are going to be addressed by
13 Grant Reeves, president of the South Carolina Solar
14 Business Alliance, LLC, and he will be addressing
15 solar potential in South Carolina.

16 Since the request was for an ex parte
17 briefing by the Office of Regulatory Staff, our
18 neutral today is Attorney Jim Corbett.

19 CHAIRMAN HAMILTON: Thank you very
20 much, Mr. Corbett. Mr. Scott.

21 MR. DUKES SCOTT [ORS]: Thank you, Mr.
22 Chairman, and we appreciate the opportunity to be
23 here. We're very happy today to be presenting an
24 ex parte on solar and solar potential in South
25 Carolina. We have probably the premier person to

1 do that with Grant Reeves.

2 I first met Mr. Reeves last summer; we
3 were at a solar conference together, and that was
4 really kind of the beginning of where we realized
5 we could -- we could work together and move
6 forward. And since that time, there's been a lot
7 of work done by -- with the utilities, the solar
8 industry, and conservationists here, and we've got
9 representatives from all of them today.

10 And there's a legislation that's now
11 pending in the general assembly; Mr. Reeves was
12 instrumental in bringing that group together and
13 very helpful in it. He is with the South Carolina
14 Solar Business Alliance and he's the spokesman,
15 sort of, for them at this point in time. So at
16 this time I'll turn the program over to Mr. Reeves.

17 CHAIRMAN HAMILTON: Thank you,
18 Mr. Scott. Mr. Reeves, we're happy to have you
19 with us, sir. The floor is yours.

20 MR. GRANT REEVES [ORS]: Well, thank
21 you, Mr. Chairman and members of the Commission,
22 and it's a pleasure and an honor to be able to
23 present to you information that I hope will be
24 useful in understanding where the solar industry
25 has evolved to on a national scale. I think it's

1 more important to understand, how does solar work
2 from an economic point of view?

3 My background as a manufacturing
4 business executive, I got involved in the solar
5 space about 18 months ago and I've learned a great
6 deal in that amount of time. I'm -- I'm a little
7 humbled to be called an expert. I read a lot. I
8 do believe I'm a quick study.

9 And what I share with you today is at a
10 very -- a very basic level because the intricacies
11 of this industry vary all over. I'll repeat myself
12 throughout, but solar is all about the numbers, and
13 every location, every state, every job, is a little
14 different. There are no generalities. What works
15 one place, doesn't work elsewhere. I'll leave you
16 with that as I proceed into my presentation today.

17 [Reference: PowerPoint Slide 2]

18 And what I really hope to accomplish in
19 this presentation, a little bit about where solar
20 as an industry has come, but really the building
21 blocks of what makes it work. And so that begins
22 with the sunshine. How do you capture it? What is
23 that worth? What are the economic factors, the
24 background? And so we'll talk about that.

25 We'll talk about how incentives in

1 policy help to grow this industry and then I would
2 like to talk about what some of the national issues
3 are, because those are the issues that we'll be
4 faced with as we evolve into this new territory.
5 And then finally, there is a piece of proposed
6 legislation, and I hope to share with you a little
7 bit of background at a very brief level of what
8 that includes.

9 I would encourage you to stop me at any
10 time if you have any questions for clarification
11 and I think it will work quite well that way.

12 [Reference: PowerPoint Slide 3]

13 So I'll just start off very quickly.
14 These are some highlights of what's happening in
15 our national solar industry today. And essentially
16 what you have is an industry that is growing
17 exponentially. A chart in a minute will show that
18 graphically, but it grew over 41 percent over last
19 year and projecting about another 26 percent next
20 year. So it continues to grow.

21 There's about 13 gigawatts of installed
22 capacity in this country. That's not a very large
23 number compared to our overall generation, but
24 certainly is a large number relative to, for
25 example, our state or even in the southeast. That

1 industry today is employing about 143,000
2 employees. And something that I found interesting,
3 coal minors in this country today are about 80,000.
4 So the solar industry has already surpassed that
5 industry. What we have is about \$14 billion of
6 installed capacity in our country and that's up
7 from just under a billion dollars back in 2006.

8 [Reference: PowerPoint Slide 4]

9 This chart, I think, probably
10 illustrates more than any, why has the industry
11 grown so quickly? The price of the technology has
12 simply dropped just as other electronic components
13 have dropped. We've seen it with telephones, we've
14 seen it with TVs, we've seen it with computers, and
15 the solar industry utilizes a lot of the same
16 technology. It's said that every time production
17 doubles, the price drops another 20 percent.

18 And so in this chart, the green line is
19 the cost per watt. That's a useful and commonly
20 used denominator of, what does a solar system cost?
21 And so it has dropped from over \$10 a watt to down
22 below \$4 a watt today. And for large scale, we'll
23 see later, those numbers have even dropped below \$2
24 a watt. The bar shows, essentially, the capacity
25 in megawatts, and so what you have over there is

1 about 45,000 megawatts of capacity.

2 [Reference: PowerPoint Slide 5]

3 The next illustration is simply, how
4 many companies are in the industry today? And
5 there's over 6,100 companies all 50 states. I
6 could've pulled the map up of South Carolina and we
7 could've looked at some of the companies in South
8 Carolina, but I'm afraid to say that there's
9 probably less than a dozen companies in this state
10 that really are seriously in the solar business
11 full-time and making a living from it. So there is
12 a large upside for this state to employ more people
13 in this industry, and part of what I'm here for is
14 to support that economic development in our state.

15 [Reference: PowerPoint Slide 6].

16 So with all of that growth, where is
17 it -- where is it located? It's certainly not
18 here, but this chart tells you it's all in
19 California. I think California is more than all
20 the other states combined. They have led with a
21 number of policies, their electricity rates make it
22 conducive, but more than anything, they have been
23 the leaders.

24 And South Carolina is not on this map,
25 but you do notice that Georgia and North Carolina

1 are, and both of our state -- both of our
2 neighboring states have, I would say, fairly
3 aggressive programs to expand the solar space.
4 South Carolina does not see that level in our
5 near-term future, but we do need experience with
6 the technology, which is part of why I'm so
7 passionate about advocating and talking about this
8 industry.

9 [Reference: PowerPoint Slide 7]

10 So what is in North -- in South
11 Carolina? Well, I'm proud to say I built the first
12 solar farm with my boss's money, not my money. But
13 it was a \$6 million investment. It's in -- just
14 outside of Walterboro. It's a 3 megawatt solar
15 farm. The photograph is that solar farm and that
16 was installed in nine weeks back in the fall.

17 That 3 megawatts of capacity, the 2.6
18 megawatts at Boeing that you're aware of, and then
19 a handful of other installations that are about
20 100 kw. That is the limit for net metering under
21 our laws today. And then about 300 residential
22 systems are on a net metering program today. Add
23 it all up, we have about 7 megawatts of capacity in
24 our state. And according to the government,
25 there's about 26,000 megawatts. So as you can see,

1 it's a small percentage of our total generation
2 today.

3 [Reference: PowerPoint Slide 8]

4 So I want to just begin with solar
5 radiance. What does that mean? That really just
6 measures the amount of direct sunlight that hits
7 the ground that can be captured with the
8 photovoltaic technology. This map is useful to
9 show how we compare to other regions of the
10 country.

11 And so we're in a -- in a sunny state,
12 we know that. The southwest is a little bit
13 better and the northeast is a little bit less.
14 And those are really the centers of solar
15 development today, the southwest and the
16 mid-Atlantic states and going into the New England
17 states.

18 But, essentially, a report that was
19 prepared by the Energy Advisory Counsel for PURC
20 said there was about 17,000 megawatts of potential
21 in our state, and that was based on between a 5
22 and 10 percent penetration. In other words, of
23 all of our generation, 5 to 10 percent.

24 That number is far greater than the
25 aspirations of the solar community today. Our

1 aspiration is simply to begin a process and show
2 the viability and then we can determine what the
3 correct percentages should be. But to, you know,
4 use this solar radiance, you can see 6 kilowatts
5 per square meter per day is what you would be able
6 to get from the technology. South Carolina is at
7 5, northeast is a 4.

8 [Reference: PowerPoint Slide 9]

9 And if you wanted to convert that to
10 actual kilowatt hours, what we buy, pay for, you
11 can see that, you know, there's not a lot of
12 difference between the Lowcountry and the upstate;
13 and what variation there is, is primarily due to
14 what they call microclimate.

15 Greenville is a little bit cooler;
16 solar panels are a little bit more efficient.
17 Charleston has sea winds that keep popup storms
18 off, so you get a little bit more sunlight. And
19 Columbia, kind of in the middle, it's hot and
20 probably a lot of popup storms.

21 But these are based off of 30 years
22 weather charts from the almanac and this is from a
23 website called PVWatts that is a very useful
24 calculator of how much electricity you can get out
25 of a solar panel at different locations.

1 Interesting to know, April, the month
2 that we're in, is the peak month and it's a
3 combination of the lower temperatures and less of
4 the type of popup storms that we experience. So
5 this would actually be a peak month. And not
6 surprisingly, December and January, with the short
7 days and the stormier weather, being the least
8 months. But the point is that in South Carolina
9 we do have very good solar radiance and that's why
10 we would say it's good to capitalize on it.

11 [Reference: PowerPoint Slide 10]

12 The second point of making solar work
13 is the economic factors in the state. So it
14 really begins with, you know, how much does
15 electricity cost? We actually are very fortunate
16 to have very competitive electricity rates in this
17 state. And there is some variability between the
18 different service areas, but South Carolina is
19 known as having low cost electricity and we want
20 to do everything we can to continue that trend.

21 Where the real economics come into
22 play is how much you pay for your equipment. And
23 that involves many factors. Obviously the solar
24 panels; that price has been declining rapidly. We
25 talked about the -- you know, the economy is a

1 scale, if they build more solar panels, and how
2 the price drops. But also, there are labor costs
3 and soft costs and I'll talk about those in a
4 minute. And then obviously the economy is a
5 scale. We'll talk about some other factors like,
6 you know, the avoided cost of power and the cost
7 of capital and what kind of rate of return that an
8 investor would want. These all go into the
9 decision to invest in solar.

10 [Reference: PowerPoint Slide 11]

11 So let's start with, you know, around
12 12 cents a kilowatt hour, and that could be either
13 what you pay today or what you project your
14 average price to be over some extended period of
15 time. You know, it is a fact that our power rates
16 have been going on -- going up. And so projecting
17 that into the future gives you part of the
18 calculation, does solar make sense for an
19 individual or for commercial operation?

20 But most importantly, and as this
21 chart shows, it's the cost that has declined. So
22 those sections up there are both for a residential
23 system, a nonresidential, that would be like a
24 commercial rooftop, it'd be a large warehouse or a
25 big box retailer, and then utility would be a

1 solar farm such as the one that I showed you in
2 Colleton. And in all of those cases you see how
3 the price continues to drop. And since 2011,
4 there's been a 60 percent drop in the cost of
5 systems which is a combination of both the
6 equipment and soft cost and labor to install them.

7 [Reference: PowerPoint Slide 12]

8 Now, one thing that we see in the
9 United States is that our cost is higher than a
10 more developed solar country which is Germany.
11 Germany, you know, has a different set of laws, a
12 different set of policies. And I actually have
13 operations in Germany. I speak with my German
14 colleagues. And I said, you know, how is it that
15 you can do it for so much less?

16 And it's very simple. They have a
17 standard program, you call up, you want it
18 installed, they come out, the paperwork is done
19 almost instantaneously. And so all of the
20 permitting, all of the labor cost, what we call
21 soft cost, are much less, and this chart really
22 illustrates it.

23 You see the difference between Germany
24 and the United States, primarily in the categories
25 of labor. And so they've been doing more

1 projects, there's a learning curve with labor and
2 they get better, but also things like permitting,
3 customer acquisition.

4 Actually, solar companies spend a lot
5 of money getting customers to sign up. I've read
6 as much as, you know, 50 cents a watt just to
7 acquire a customer. So a lot of expense goes into
8 it. That's really pulling customers as opposed to
9 customers coming to you, which is a more efficient
10 way of managing costs.

11 Overhead, the supply chain, all of
12 those are contributing. All this chart really
13 says is that we have additional opportunity to
14 drive more cost out by doing two things: Making
15 the process for getting solar installed more
16 efficient, less paperwork, less bureaucracy, also
17 having our labor force more experienced and
18 therefore more efficient, the learning curve in
19 labor.

20 [Reference: PowerPoint Slide 13]

21 Other things that go into the
22 equation, when we look at a solar project, a lot
23 of input is to that. I talked about all of the
24 numbers. But certainly you can use borrowed money
25 to boost returns. Every businessman knows that

1 trick; it's done every day with every investment
2 that -- that we do.

3 The avoided cost of the utility is a
4 big factor. Avoided cost is the fuel, and fuel
5 projected into the future is a guess, it's an
6 educated guess. You know, there's fuel future.
7 You know, contract. But, essentially, what will
8 the cost of fuel be in the future is an unknown,
9 it's unpredictable.

10 And one of the big advantages of solar
11 is there is no future risk of cost. What you pay
12 today is what you pay, and you're going to get
13 power for 20 years and you can predict what that
14 power cost will be. That has a big advantage when
15 you're trying to justify a project to an investor
16 or a homeowner.

17 And then the last thing is that the
18 investment community today does not expect huge
19 returns. It's a very low interest rate
20 environment; it's also a low return yield
21 environment. And so today investors are looking
22 for safe, predictable returns, an income stream,
23 an annuity stream, that they can invest in, and so
24 solar becomes very attractive to them. And as a
25 result, they're willing to will take projects at

1 below 10 percent returns. And, of course, with
2 competition, those returns are even driving lower.

3 Our returns, for example, on the
4 Colleton solar farm -- and there's still some
5 uncertainty about all of the various components
6 like property tax, but it's below 9 percent and we
7 consider that a very good return for our -- for
8 our -- for the risk that we take.

9 [Reference: PowerPoint Slide 14]

10 So you have solar radiance, sunshine
11 and you have the economic background. How do you
12 bring those together to actually develop a
13 marketplace for this technology? And that really
14 is the job of the policies and incentives that the
15 various states and even the national government
16 has put in place.

17 Now, certainly the federal tax created
18 has been the largest driver to put this industry
19 where it is today. And, you know, it's been said
20 that that is a federal subsidy, and, you know, we
21 have used subsidies in this country to develop all
22 sorts of technology. So this is just another
23 example.

24 As a result of those subsidiary --
25 subsidies, we have seen the price of the

1 technology drop, and that is a benefit to, you
2 know, our -- our nation and all of our users. So
3 the federal tax credit has probably been the
4 single greatest driving force for the development
5 of solar.

6 But there are also state incentives,
7 and we saw earlier that California had this huge
8 market. By no surprise, they also have some of
9 the best incentives in the nation as well to
10 support that.

11 Net metering, which we have in the
12 state, is a voluntary program. It's a good
13 program; it's essential. And all the states that
14 have seen solar develop, net metering has been a
15 part of the formula. Today, unfortunately, that
16 same formula has come under -- under challenge for
17 whether or not it is a sustainable formula as
18 penetrations get larger and larger. I'll talk
19 about that a bit more in a minute.

20 Third-party leasing and power purchase
21 agreements is a novel finance approach to allow
22 investors that have capital to invest, to buy the
23 equipment, and then rent it or sell electricity
24 back to the consumer, the businessowner or the
25 homeowner, and that allows people to avoid the

1 large upfront cost. It's been the subject of
2 proposed legislation in the state. And, you know,
3 today that is primarily, again, western states and
4 mid-Atlantic states, but not any in the southeast
5 at this time.

6 Renewable portfolio standards, we're
7 familiar with those there in our a neighboring
8 state, in North Carolina. And that's where the
9 policy makers say, we will have a mandate for a
10 certain amount of renewable energy. And so then
11 the utilities have to put programs in place to
12 meet those mandates, those quotas.

13 Under that system there are, you know,
14 pluses and minuses. You grow the industry, you
15 grow a job market for that industry, but you also
16 place some burden on the utility. And if you
17 listen to the utilities, they'll tell you how, you
18 know, that may result in some higher costs for
19 them. I think that is still an analysis and a
20 debate that there are many sides to and that also
21 will be touched again in a few moments.

22 Property tax and sales tax abatements,
23 those are also instruments to help the financing
24 and the numbers fall in line to be a viable
25 investment. In South Carolina, industrial scale

1 is considered machinery and equipment; that
2 receives a manufacturing sales tax exemption. But
3 if you're a residential owner of solar, you would
4 pay sales tax on that and, you know, pay revenue
5 to the state.

6 With respect to property tax, property
7 tax is generally assessed using a variety of
8 members -- methods: It could be the cost
9 approach, probably most often used; it could also
10 be the replacement approach, not a lot of solar
11 farms to compare to; and then there's an income
12 approach.

13 Working with the Department of
14 Revenue, they believe that the income approach is
15 appropriate for solar farms and that will
16 facilitate the development of those projects in
17 our state and will result in tax revenue to the
18 counties that host the solar farms.

19 And so in that case, we're paying
20 taxes to Colleton County and we're proud to be
21 contributing to the tax base, and that makes us a
22 more welcome addition to that county. And
23 certainly as we're trying to develop, we want
24 counties to welcome us in and not feel like we're,
25 you know, coming to the -- to the county and

1 not -- and not bringing -- not leaving anything
2 behind.

3 [Reference: PowerPoint Slide 15]

4 So as I say, well, let's put all this
5 together. What does this look like? So you take
6 how much sunlight you have and, you know, cost of
7 power and then the incentives that you have, and
8 how does the project add up?

9 Now, this I may say for illustration,
10 it's very simple, the numbers are numbers that I
11 put in there, they vary. Like I said, every
12 project is different. But if you were to take a
13 retail price in my territory down in the
14 Charleston area and you had a 5 kilowatt which is
15 appropriate for a small home, you get, you know,
16 about 7,000 kilowatt hours all for the year. Do
17 the math, that's about, you know, \$900 a year that
18 you would save.

19 That system cost you 20 grand, but you
20 have some tax credit, 6,000 for the feds and 5,000
21 in South Carolina. So you end up with about an
22 \$11,000 investment -- excuse me, \$9,000
23 investment. You've got about \$900 a year you're
24 saving, 10-year payback, and that assumes that
25 your power rates don't go up and assumes that the

1 solar panel doesn't degrade.

2 Degradation is what happens as solar
3 panels get older and they lose their productive
4 output, and that's about one half of a percent per
5 year. So it's not huge, but it needs to be
6 factored into the details. For this illustration
7 I chose to keep it a little simpler for you.

8 [Reference: PowerPoint Slide 16]

9 And now let's look at a large scale.
10 So this would be the Colleton solar farm. This is
11 not the Colleton solar farm numbers, but I put
12 something in there just for illustration. And so
13 if the feed-in tariff for the farm was \$80 a
14 megawatt hour, it produces, you know, about 4,556
15 megawatt hours a year. It was a \$6 million
16 investment, \$2 a watt.

17 And I might mention that the, you
18 know, large scale projects are about half the cost
19 of residential. And so there is definitely an
20 advantage when you're investing in solar to go
21 with a larger scale because it brings the cost
22 down and makes the numbers look better.

23 But in this case, when you take all
24 the math and take out the federal tax credit -- I
25 did not count the state tax credit because it's

1 capped at \$35,000 and it didn't make any
2 difference in the math, so I just set it aside,
3 but there is the \$35,000 credit spread over 10
4 years. The payback is about 11 and a half years.
5 It's about a 9 percent return on investment, the
6 number I mentioned earlier.

7 And I think the important thing in all
8 of this is that what we're talking about is a
9 long-term asset that has a long-term payback, but
10 it also has 10 or so years of productive
11 generation after it's paid for.

12 And so if you're looking to save money
13 in a hurry with solar, you probably need to keep
14 looking; but if you're looking for a long-term
15 investment, you're going to be in your home for a
16 while, then you need to -- you need to look at
17 this very closely.

18 Utilities are in it for the long hall.
19 We all know that we're going to need electricity
20 for, you know, as long as we're around and our
21 children and on and on. So if this technology is
22 added to our grid in the right way, it can
23 contribute in a productive way.

24 [Reference: PowerPoint Slide 17]

25 I'd like to introduce a concept called

1 levelized cost. I apologize if you're familiar
2 with this analysis, but I find it useful for solar
3 because it takes into account what solar is all
4 about. It minimizes future cost. You pay for it
5 now, you have nominal operating cost in the
6 future, you pay some property tax, you pay some
7 insurance, you mow the grass, that's about it.
8 There's no employees involved.

9 And so if you take the asset, a solar
10 farm or a nuclear plant, what did it cost to build
11 it, how much are you going to pay for fuel and
12 operating cost and maintenance over its lifetime,
13 whether it's 20 years for a solar farm or 50 years
14 for a nuclear plant? You know, how much do you
15 pay for fuel over that lifetime? And then divide
16 it by the output of that asset over its lifetime,
17 you get what is referred to as levelized cost.

18 And this is very instrumental because
19 what it says is that solar is comparable with
20 conventional generation. And so as Commissioners,
21 when you're asked to evaluate a rate increase, you
22 want to know, well, what is the avoided cost and
23 what is this going to cost us? And we don't want
24 to pay more than what we paid in the past year.

25 What I suggest is if you look at the

1 cost over a longer horizon, that may be a better
2 investment decision. And I believe that the
3 legislation and the way that policy leaders are
4 thinking now, they want you to consider the
5 long-term benefits. It may be that, yes, it's a
6 little bit more expensive than avoided cost now,
7 but where we will be 10 years from now? And
8 that's what we want to have in our system. Our
9 pieces of our generation, it's diversified and
10 fixed.

11 [Reference: PowerPoint Slide 18]

12 And this chart is very small, and I
13 apologize for that. But the bars on this chart
14 reflect a range of cost and levelized cost per
15 megawatt hour. And what it shows, if you look at,
16 I think, the third line down is conventional,
17 crystalline, photovoltaic technology. So solar
18 panels that you're familiar with.

19 And it shows that the levelized cost
20 today is between, I think, about 84 and \$100 per
21 megawatt hour. In conventional technology, for
22 example, a combined cycle gas plant is in the same
23 range. So using the levelized cost approach, the
24 technologies are comparable, and the reason why I
25 make the statement.

1 [Reference: PowerPoint Slide 19]

2 So the solar industry has created a
3 lot of tension with the utilities in the national
4 scene and there's a lot of reasons for it and I'm
5 sure you're well read on some of those reasons.
6 But the things that are being fought in other
7 states, and will likely be debated in this state,
8 are around net metering and what is the value of
9 solar.

10 And depending on your perspective, you
11 can look at it as simply, you know, the cost of
12 the fuel avoidance and perhaps some of the
13 infrastructure for distribution and transmission
14 lines, or you can start looking broader than that.
15 I have a chart and it goes into a bit more detail,
16 so I'll move to the next item.

17 Third-party ownership, hotly debated.
18 Many states believe that that is allowing
19 third-parties to move into the exclusive territory
20 of utilities. Utilities are uncomfortable with
21 that, they have many reasons for that discomfort;
22 but as different states adopt leasing, we have
23 seen it has been the largest reason for growth and
24 it's primarily because it takes away the upfront
25 cost. But it does involve the property owner, the

1 residential, to sign very long-term agreements.

2 If you're in your house and -- you
3 know, most Americans move fairly often, you know,
4 that's an issue. And so, you know, leasing has
5 not been around long enough to really know how it
6 will play out. I think it will play out okay. I
7 think we'll muddle through it, but I don't believe
8 that all of the issues have been resolved.

9 I do believe that the companies that
10 are going to be in that business need to be
11 strong; they need to have very strong consumer
12 oriented cultures that take care of the customer
13 and that can be there for a long time. But
14 leasing is a valuable way to grow solar and it
15 certainly is something that is hotly contested in
16 the states that are debating that today.

17 Renewable portfolio standards. States
18 that believe in them, they go with it. Some
19 states don't believe in them and they're dead on
20 arrival. I believe South Carolina is one of those
21 states that does not see renewable portfolio
22 standards in its future. I would agree with that
23 as a policy for our state.

24 Grid modernization and integrating.
25 This is really the main deal. I'm talking today

1 about solar, and solar is really yesterday's news.
2 The news of tomorrow is, how do you store that
3 solar electricity that you make during the day,
4 but you need it at night? And that's going to be
5 energy storage.

6 When the battery technology gets to
7 the point where it's affordable, then solar really
8 plays a big part. And what I'm told is we need to
9 understand solar so that we're ready for that next
10 technology that comes along. And then you combine
11 smart meters and voltage control and making the
12 entire grid managing the demand.

13 I think we all know that we have a lot
14 of idle generation capacity. Every utility does.
15 We build assets for our peaks and our peaks don't
16 happen every day. If we can spread that energy
17 out, that lowers cost. And the smart grid is
18 going to lower cost by managing demand and solar
19 is just going to be one of the inputs.

20 So that's why it's important for us to
21 get this experience today. I believe that's why
22 the utilities support this. They see the
23 technology evolving, they don't want to be left
24 behind. I know South Carolina doesn't want to be
25 left behind.

1 And that kind of gets into just, you
2 know, integrating solar into the wholesale market.
3 There's all sorts of rules and protocols, a lot
4 territory that needs to be worked out and is still
5 evolving. And because there's competing
6 interests, there's obviously conflict. And what I
7 find is managing that conflict in the constructive
8 way is what South Carolina has proven to do, and I
9 want to talk about that in just a minute as well.

10 [Reference: PowerPoint Slide 20]

11 This chart has been widely circulated
12 and it's used by advocates of solar to say there
13 are many values to solar other than just the
14 energy that comes out of it. You know, there's
15 the capacity and how it helps reduce the
16 transmission and line losses. It talks about grid
17 support services, financial risk, all of the
18 securities.

19 Sometimes you hear about military
20 bases wanting more secure energy. You know, the
21 Department of Defense is building more and more
22 renewable energy behind the fence for security.

23 And then certainly all of the social
24 benefits which goes to everything from, you know,
25 traditional, conventional. Emissions. If there's

1 a carbon tax one day, this is an avoidance of it.
2 Certainly the jobs that it creates and the
3 economic development. These are all benefits that
4 advocates of solar would argue need to be included
5 in the value of solar.

6 And so it's the value of solar that is
7 going to be your biggest challenge. I believe, if
8 we're successful, that this Commission is going to
9 be charged with how to figure out, what is solar
10 worth? And that's a -- that's a big question
11 because nobody knows right now. Everybody has an
12 opinion. I don't think that it has been settled.
13 And I respect the job that's ahead of you.

14 [Reference: PowerPoint Slide 21]

15 So I want to take the remaining time
16 to just brief you very quickly on what is moving
17 through the legislature. And you may have heard,
18 and if not, I'm proud to say that we have formed
19 the coalition in our state of utility interests
20 and I'm talking 22 co-ops, all of our
21 investor-owned utilities, Santee Cooper. We have
22 conservation groups, we have a business community,
23 all supportive. A number of other groups are not
24 opposing and taking more of a neutral stance, but
25 certainly you can't ignore that our manufacturing

1 community, our nonprofit community, no one in the
2 state of South Carolina opposes this legislation.
3 And for that reason, I believe it should be
4 passed. And if it is passed, this briefing will
5 help you understand what's coming down the pike.

6 So first off, a Distributed Energy
7 Resource plan. This is more than solar. This is
8 all renewable energy, this is wind, this is
9 battery storage, this is micro, hydro, it's
10 biomass. This encompasses all of the renewable
11 energy space and it creates a program that allows
12 those technologies to be cost recovered by the
13 utility.

14 We mentioned earlier how avoided cost
15 is the standard today. Well, these technologies
16 cost more than avoided cost. How does the utility
17 rate recover that avoided cost? This program is
18 designed to allow them to do that, and in doing
19 so, it promotes the development of the program
20 that it's designed to create. And that is a
21 reliable and efficient, diversified generation
22 portfolio.

23 [Reference: Distributive Energy
24 Resource Program Allocation and Pro Forma
25 Expenses]

1 This sounds scary because that sounds
2 like, well, we're going to charge everybody more
3 money. And sometimes to get something good off
4 the ground, you have to invest in it. But these
5 caps are very low. And I provided a spreadsheet
6 that you also have, and what it really tells you
7 is that we probably will spend less than half of
8 this if we do everything the plan allows. So
9 these are very de minimis amounts of money, but
10 I'll leave it for you to judge for yourself. \$12
11 residential a year, you know, \$10 a month for
12 commercial, \$100 a month for industrial.

13 [Reference: PowerPoint Slide 22]

14 The utilities are not being forced to
15 do this. This is something that they would do,
16 they would choose to do. They opt into it. But
17 once they opt into it, they're committing to some
18 specific goals. And those goals are essentially
19 to build 1 percent of their generation capacity in
20 large utility scale type projects; 1 percent in
21 less than 1 megawatts. So this would be large
22 rooftop and residential. And of that 1 percent, a
23 quarter of it would be residential programs. When
24 those targets are met, utilities also have the
25 option to make investments with their own money in

1 this space as long as it's reasonable and prudent.

2 The amount that this could generate is
3 around 300 megawatts and that would require that
4 the co-ops in Santee Cooper also participate, but
5 about 250 of that would be from the investor-owned
6 utilities based on the goals that they set forth,
7 if they opt in.

8 [Reference: PowerPoint Slide 23]

9 One of the keys to finding a
10 compromise with such a balanced group was to
11 address all the issues that everyone, all the
12 stakeholders, felt was important. And certainly
13 looking at the net metering and how that is done
14 today and how it needs to be done in the future,
15 anticipating higher penetration.

16 And one of the mistakes, in my
17 opinion, and other mistakes made, is they put
18 policies in place without thinking two moves
19 ahead. And now they have this high penetration
20 and they're questioning, you know, is that a
21 sustainable policy? And now they're fighting it
22 and it's very ugly fight, frankly, and not that
23 productive.

24 I think it is smarter to make sure we
25 have the right rules for the long-term, and this

1 component of the legislation addresses that right
2 upfront. And, in fact, if this legislation is
3 passed, it'll be one of the first things that gets
4 addressed within 30 days. The Commission would be
5 asked to open the docket to start looking at it.

6 But some of the things that are
7 included in the bill is that it does increase the
8 capacity to 2 percent. I think it's a .2 percent
9 today. It also allows systems to be larger than
10 100 kw. So it could be up to a megawatt. I know
11 that's important for someone like Furman that has
12 wanted to build larger projects.

13 I built, again, for the boss, a
14 project on the Carolina Ice Palace. We would've
15 like to have done 300 kws, the law said it could
16 only be a hundred, so we built a hundred. If this
17 law passes, you know, we'll expand it and, you
18 know, we'll put some people to work and we'll add
19 some more capacity.

20 One of the other things that people
21 are -- you know, kind of feel miffed about is, you
22 know, you get a credit if the monthly generation
23 is high, but if you don't use that credit, it gets
24 zeroed out. We believe a more fair approach is to
25 buy those credits at the end of an annual cycle at

1 avoided cost. And that, again, is just a good
2 improvement to our current net metering.

3 But the biggest issue before the --
4 all right, somebody help me. Thank you.

5 [Reference: PowerPoint Slide 24]

6 The biggest issue that we have to come
7 up with is the value of solar that I mentioned
8 earlier. And I'm not going to read through here,
9 but we need a methodology and then once the
10 methodology is determined, then we need to put the
11 numbers to it and then we need to have a hearing
12 and then we need to all agree and move forward
13 from that.

14 [Reference: PowerPoint Slide 25]

15 I'm going to move quickly through a
16 couple last slides. Third-party leasing is
17 included. This is something that has been asked
18 for in our state and utilities agreed to add it.
19 We would be one of the first in the southeast to
20 do so and so this is quite an accomplishment and,
21 I think, indicative of the type of compromise that
22 we've accomplished here.

23 [Reference: PowerPoint Slide 26]

24 And then finally the solar tax credit
25 amendment. This simply allows larger scale

1 projects to access the tax credit of 25 percent.
2 It's designed to help support those projects that
3 are under a megawatt. And the important point
4 here is that this is investor or private market
5 initiated. The DER program is primarily utility
6 initiated. Utilities want to do it, but with this
7 program, any individual that wants to put a
8 project can do it and those projects are viable at
9 avoided cost. So the utilities have no concerns
10 with that.

11 [Reference: PowerPoint Slide 27]

12 And so finally I would just close, I
13 will try to close, by saying that the renewable
14 energy sector is a very dynamic and growing
15 market. South Carolina has been undeveloped in
16 that market; we want to change that. Our energy
17 policy leaders are committed to this program. And
18 we want to create jobs. We want to see this
19 industry grow. It's an attractant to new industry
20 to our state. Fortune 500 companies that want to
21 come here like to see these policies. It reflects
22 well on us as a state.

23 And because of the collaboration among
24 the stakeholders, we were able to come up with a
25 comprehensive plan. Very proud of that. And we

1 believe, and not just us, but national solar
2 journalists and other advocates say we may be the
3 model for the future. So we're very pleased with
4 that. And I thank you for your time. And it's
5 hard to get all that in, I'm sorry.

6 CHAIRMAN HAMILTON: I think you did a
7 great job, Mr. Reeves. It was very thought
8 provoking and I'm sure it's going to be extremely
9 helpful to the Commissioners. I believe earlier
10 you said you would accept questions if some of the
11 Commissioners have some.

12 And at this time I'd like to ask the
13 Commissioners. Commissioner Howard.

14 COMMISSIONER HOWARD: Mr. Reeves, I
15 enjoyed your presentation very much. It's
16 interesting to see. Years ago, and I won't put a
17 time line, when solar just came along and started
18 talking about at national organizations and
19 realized where solar would be and probably where
20 we'd be going, there was an issue with the state of
21 South Carolina. And the two things that came to
22 mind, and I'll admit at that time it didn't make
23 sense to me, still doesn't make sense to me today,
24 but I'll ask you to explain it. One of them was
25 South Carolina would be a poor solar state because

1 of the amount of cloud cover. And I didn't realize
2 that South Carolina had any more cloud coverage
3 than any other state, and so I wondered about that.

4 And the second thing was the angle of
5 the sun rays and that too didn't make a whole lot
6 of sense. And I don't know if these are just
7 concepts that I've heard, or have you heard those
8 concepts or could you elaborate on them?

9 MR. GRANT REEVES [ORS]: Well, earlier
10 we had that solar radiance map and so that does
11 take into account cloud cover. And, you know, on
12 average, I think about a third of our days are
13 cloudy and that is not a bad condition. We get --
14 you know, the chart shows we have a very good
15 outcome.

16 Tilt, the angle of the panel to the sun
17 is very important. It's actually one of those
18 numbers that you can tweak to get, you know, a
19 different result. I read an interesting article
20 where some people are advocating a more western sky
21 tilt so that the production is coinciding with the
22 peak demand, an interesting idea. It may not
23 maximize the output, but it maximizes the output
24 when you need it most. But certainly, you know,
25 both tilt and -- well, tilt is something that's

1 important.

2 The Colleton solar farm actually is
3 unique because a portion of the panels are on
4 motors and they move with the angle of the sun to
5 maximize. And one of our goals is to -- to learn
6 and demonstrate that the higher cost of that
7 mechanics to move the panel justifies the
8 incremental output. And, you know, from my own
9 data, there's about a 9 percent premium for the
10 technology and a 17 percent greater output. So
11 we -- we conclude that that is a good investment,
12 to spend a little bit more to get more output.

13 COMMISSIONER HOWARD: Thank you very
14 much.

15 COMMISSIONER RANDALL: Mr. Chairman.

16 CHAIRMAN HAMILTON: Commissioner
17 Randall.

18 COMMISSIONER RANDALL: Thank you.
19 Mr. Reeves, thank you very much for your
20 presentation. That was -- it was very good and I
21 appreciate your good information. Just a couple
22 of -- a couple of questions that I had in an
23 education vein here. And I followed the Energy
24 Advisory Committee meetings from back from my days
25 at PMPA and with -- in following this legislation,

1 so I applaud you for your work there.

2 A couple of things that I've asked at
3 other -- we go to a lot of education on distributed
4 generation on solar, trying to learn as much as we
5 can because this -- as the legislation comes in,
6 we'll be -- from an economic side, we'll certainly
7 be -- be dealing with that.

8 Two or three things that I wanted to
9 ask you about, and off of some of it that you --
10 stuff that you had talked about was, one of them
11 was solar degradation. I've asked this before.
12 When you're talking about degradation, I asked one
13 time about, in my house in Clinton -- that's
14 Clinton as most people would say, but we call it
15 Clinton where the tea is sweet but the T is silent.

16 I have pecan trees and pine trees and
17 get a lot of pollen. How does that affect the
18 performance of a solar panel? Do you end up with
19 another industry that cleans solar panels with that
20 kind of thing?

21 MR. GRANT REEVES [ORS]: Great question
22 as well, and thank you for that. So anything that
23 gets on the solar panel is going to reduce its
24 efficiency. And certainly pollen in our part of
25 the world, dust in the desert, is a big problem.

1 Fortunately we get enough rain that it washes the
2 pollen off. But part of the Colleton solar farm is
3 to answer the question, well, does it work like I
4 just said, does the rain wash it off?

5 And so it was reported to me that there
6 is a small amount of pollen residue on the panels
7 after the rain. And as you know, pine pollen is
8 very sticky and it may well be that you have to
9 physically wash that off. And I think the jury is
10 still out. I would believe that people in North
11 Carolina have more experience with that and it's
12 another example of why we need to be in the
13 industry so we can learn these on-the-ground
14 elements.

15 But our experience through the pollen
16 season so far is that that soiling, as it's known,
17 has been less than 1 percent and you have to make
18 an economic decision. When the soiling gets so
19 high and the efficiency drops, it pays to have
20 labor go wash the panels. And I suggested they
21 should wash them on a rainy day.

22 COMMISSIONER RANDALL: Good idea.
23 Yeah, that's just always been -- I've always
24 wondered that because it doesn't wash off very well
25 off my windshield. There's pine trees sitting in

1 my neighbors yard.

2 When you're talking about levelized
3 cost over time, do you include capacity factor in
4 that?

5 MR. GRANT REEVES [ORS]: Yeah.
6 Capacity factor is a very important element of that
7 calculation. I mean, obviously, a nuclear plant
8 runs 24 hours a day, capacity factor is
9 99.5-something. Solar is about 15 percent. Wind,
10 about 30 percent.

11 COMMISSIONER RANDALL: Thank you.

12 MR. GRANT REEVES [ORS]: But that is
13 included in the calculation.

14 COMMISSIONER RANDALL: Okay. That's
15 one thing. Just one last question, if I may,
16 Mr. Chairman.

17 CHAIRMAN HAMILTON: Yes, sir.

18 COMMISSIONER RANDALL: When talking
19 about California, the big penetration that
20 California has, and we've certainly listened to
21 presentations from the commissioners and from the
22 utilities in California on all sides of that issue,
23 and one of the things that they really have been
24 working on and talking about is safety. And so I'm
25 just wondering what -- in this legislation or in

1 the talk, are there standards or installation
2 standards and codes that everybody is going to
3 agree on to make it safe or for the folks that are
4 going in to --

5 MR. GRANT REEVES [ORS]: Yeah.

6 COMMISSIONER RANDALL: -- do work on a
7 house or a business that has a combination of
8 traditional based solar power and also with
9 renewable power?

10 MR. GRANT REEVES [ORS]: Absolutely.
11 Written into the legislation are the national codes
12 and standards and I think there's about four or
13 five that are referenced specifically. And, of
14 course, the interconnection agreement further
15 defines what those requirements would be.

16 We chose not to be so prescriptive in
17 the legislation, but rather allow both the
18 regulatory process as well as the utility
19 interconnection agreement to address those. But I
20 actually believe that's another industry that will
21 grow and that would be essentially the quality
22 control inspection task, to be sure that every
23 installation meets the right requirements.

24 And I certainly have encouraged all of
25 my members to get the type of certifications,

1 national certifications and credentials, that
2 designates them as qualified to do this type of
3 work. And we would certainly encourage consumers
4 to only deal with qualified professionals.

5 COMMISSIONER RANDALL: Thank you,
6 Mr. Reeves. Mr. Chairman, that's all.

7 CHAIRMAN HAMILTON: Commissioners?
8 Commissioner Whitfield.

9 COMMISSIONER WHITFIELD: Thank you,
10 Mr. Chairman. Thank you, Mr. Reeves. Good to have
11 you with us and I appreciate that informative
12 presentation.

13 You touched on one of your slides, when
14 you were talking about future utility business
15 models, and I think you got into a little bit about
16 grid modernization and integrating renewable energy
17 into the transmission and distribution systems and
18 you were talking about storage.

19 And when I get on that subject, I think
20 about some of our best examples here in South
21 Carolina. A couple of our utilities have hydro
22 pump storage. And years ago when it was built, it
23 was considered a great innovation. And here in
24 2014, it's still considered a huge, huge asset,
25 almost like a battery that's able to juice itself

1 up at night and then release it as it's needed.

2 And I guess that leads me to my
3 question. You touched on storage, and as you see
4 technology unfolding, what do you see that would
5 allow us to store this and utilize it as needed?

6 MR. GRANT REEVES [ORS]: Yeah. Well,
7 I'm glad you mentioned about hydro pump storage.
8 It probably is the most effective way and the
9 fastest spinning asset that utility can utilize.
10 So I think we're fortune to have that capacity.

11 The battery technology innovation today
12 is happening not necessarily for energy storage,
13 although that is a focus for many companies, but
14 it's really being driven by the electric car
15 market. You may have read that company Tesla is
16 building a giga factory, and if you look at the
17 information that is being published about that,
18 that is going to be one of the keys to driving the
19 cost of battery storage down.

20 It's even been suggested that as more
21 electric car vehicles are in the population, that
22 they would actually be accessed and you would be
23 pulling power from that. It's part of the demand
24 management capabilities that a modern grid would
25 have capability of. And so really that is, some

1 people say, the holy grail today, is battery
2 storage and getting higher energy density at a
3 price point that makes it cost effective.

4 And I have been told -- I'm not as well
5 versed -- that the price declines in that
6 technology development are mirroring what we have
7 seen with solar. It's not here today and whether
8 it's 10 years away or less, you know, we're all
9 waiting to see that. But I think what's happening
10 with Tesla and their battery factory, and if that
11 comes to fruition and their business model is
12 successful, that is going to drive the cost down,
13 according to the analyst that I read.

14 MR. WHITFIELD: Well, thank you.
15 That's certainly the technology that we certainly
16 are watching. And, as I said, these assets that
17 were built years ago still continue to be such a
18 huge asset in that arena. Thank you. Thank you,
19 Mr. Chairman.

20 CHAIRMAN HAMILTON: Thank you.
21 Commissioner Hall.

22 VICE CHAIRMAN HALL: Thank you. Thank
23 you, Mr. Reeves, for your presentation. Your, I
24 believe, second slide with the price decline, does
25 that include subsidies or no?

1 MR. GRANT REEVES [ORS]: That is actual
2 cost. So that is without subsidies.

3 VICE CHAIRMAN HALL: Okay. And what do
4 you anticipate happening after the federal credit
5 expires?

6 MR. GRANT REEVES [ORS]: So there was
7 an article that I read last night about wind
8 technology. And wind technology, it's interesting
9 because their federal subsidies expired in 2012 and
10 then they were extended in 2013. And that
11 unpredictable climate, it was cited, led to 30,000
12 job losses in wind technology. And so the article
13 was from the head of the solar energy industrial
14 association and they're, of course, advocating for
15 an extension of the federal tax credit beyond 2016.

16 I would say that there's a fair chance
17 that there will be a lull in activity if the credit
18 is not extended and they'll be a lot of very
19 aggressive lobbying to have it extended. You know,
20 I cannot predict what the future may hold, but I
21 would -- I would plan for that credit to expire and
22 that's why I have such an urgency for this
23 legislation because I'd like to utilize those
24 federal dollars in our state. You know, use those
25 federal dollars along with our instate investment

1 dollars and get some infrastructure in the ground.

2 However, the price declines may
3 eventually equal the difference between that 30
4 percent decline. You know, if prices drop another
5 30 percent, then we're, you know, in the same place
6 we are today. I don't believe that the solar
7 industry will come to a complete, abrupt stop, but
8 it certainly removes a major incentive. All things
9 being equal, I think it's safe to assume less
10 activity.

11 VICE CHAIRMAN HALL: Thank you. I just
12 have one other question out of curiosity. How
13 much -- how many acres is the solar farm in
14 Colleton? How much land does that take?

15 MR. GRANT REEVES [ORS]: There's 14
16 acres inside the fence for three megawatts. Good
17 rule of thumb is five acres per megawatt.

18 VICE CHAIRMAN HALL: Okay. All right.
19 Thank you. Thank you, Mr. Chairman.

20 CHAIRMAN HAMILTON: Commissioner
21 Fleming.

22 COMMISSIONER FLEMING: Thank you, Mr.
23 Chairman. Good afternoon.

24 MR. GRANT REEVES [ORS]: Thank you.

25 COMMISSIONER FLEMING: Delighted to

1 have you here today. That was a very interesting
2 presentation. And I certainly would've loved to
3 have been a fly on the wall during the meeting when
4 all of you were together writing that legislation.
5 I'm sure it would've been quite informative and
6 stimulating, to say the least.

7 MR. GRANT REEVES [ORS]: You would have
8 been proud of us.

9 COMMISSIONER FLEMING: I am proud that
10 you all got together and you came up with something
11 that you're all agreeing to.

12 And I believe we have one of the
13 installers that was here. Weren't you here for our
14 net metering a few years ago --

15 AUDIENCE MEMBER: Yes.

16 COMMISSIONER FLEMING: -- speaking to
17 them as well?

18 I'd like to -- you didn't really go
19 into the business model which certainly would be a
20 major -- could be a major change from the way we've
21 done business in the past. Could you elaborate a
22 little bit more on that?

23 MR. GRANT REEVES [ORS]: The utility
24 business model or the solar business model?

25 COMMISSIONER FLEMING: Well, it seems

1 to me that we'd be looking at the utility business
2 model for our state which would certainly
3 involve --

4 MR. GRANT REEVES [ORS]: Sure.

5 COMMISSIONER FLEMING: -- the solar
6 industry, I would imagine.

7 MR. GRANT REEVES [ORS]: Well, you
8 know, first off, this is a very modest plan. So I
9 don't think it materially affects the utilities
10 business model. The utilities are forward thinking
11 and so they want to be sure that things that happen
12 now don't have future consequences. And I think
13 that's part of the learning from other states.

14 I believe that the utilities have
15 embraced solar, provided it's done in a way that is
16 not disruptive to their business model and I
17 believe that the utility business model is
18 something that we need to preserve. There have
19 been advocates that say, you know, let's break the
20 utility model. I'm not one of them.

21 When the ice storm hit, I was grateful
22 that the utilities got my power back on. And I
23 think as an industrial customer, solar will never
24 power my factory. So we need the utility model and
25 we need it to work, but we also need to integrate

1 these new technologies.

2 The greatest opportunity is to even out
3 our peaks and our valleys on our infrastructure.
4 It's just a real shame that we have so much
5 invested, embedded in our rates for capacity that's
6 just waiting for that coldest day of the year. And
7 so the technologies that allow us to smooth them,
8 to store the energy, demand management, time of use
9 rates, smart appliances that come on at night,
10 those are all things that the new business model
11 has to embrace in order to offset the pressure of
12 rising costs. I mean, fuel, labor, those things
13 are all going up.

14 In my manufacturing world, I win by
15 being more productive, getting more out with the
16 same. The goal for the utilities is to get more
17 out of the same, more power when we need it, even
18 out the peaks. And I think solar will be a part of
19 the technology that will allow us to do that. So
20 we're not here to form a revolution and break the
21 utility model. We're here to make the utilities
22 strong because we need the utilities.

23 COMMISSIONER FLEMING: And during these
24 discussions -- I don't know if it's premature at
25 this time, but Commissioner Randall was talking

1 about California, and there was a meeting that I
2 attended that California -- a utility from
3 California, the CEO, and also from Colorado, spoke,
4 talking about, they have a lot of these initiatives
5 in place, but what they were learning was that
6 there was kind of an imbalance.

7 The people who could afford the solar
8 panels were not necessarily the people who had --
9 who had income, but there really was no -- so the
10 basic facility charge was not really covering the
11 cost of taking care of the line. And the people
12 who were paying the basic facility charges --
13 that's what I was trying to say -- were not those
14 who necessarily could afford that extra money.

15 But as you said, anytime there's a
16 problem, and especially -- it doesn't matter what
17 income level you are, you want those lights to stay
18 on irregardless.

19 MR. GRANT REEVES [ORS]: That's right.

20 COMMISSIONER FLEMING: So have you
21 talked anything about, as you're looking at the
22 business model going forward, a way to certainly
23 maintain the integrity of the transmission line?
24 And it certainly is going to be in a very dynamic
25 phase as we move forward and this technology

1 advances. Was that a part of this discussion or is
2 this kind of coming at a later point?

3 MR. GRANT REEVES [ORS]: Well, a lot of
4 what -- you're talking about this kind of, you
5 know, collaboration and compromise. A lot of what
6 we worked on was a process to address the tough
7 issues and certainly, you know, the cost of service
8 and who pays for it, and essentially, you know, how
9 does the utility cost get allocated?

10 And, you know, words have been used
11 like cost shifting and benefits. I mean, let's
12 face it, the utility rate model does not reflect
13 the way that costs actually are incurred. And
14 there's disparities between rural and urban,
15 there's disparities between industrial and
16 residential. So it's not a perfect model.

17 And, you know, I believe the way that
18 the model works today is primarily a volumetric
19 charge that carries a fixed component to it. And
20 so the problem is, of course, as people use less,
21 they're paying less fixed cost and that fixed cost
22 falls on more people.

23 You know, that is the question to be
24 answered. This hearing, you know, we'll never get
25 to it. I have an opinion, everybody in this room

1 has an opinion. Let's have the debate, let's, you
2 know, do it maturely and constructively. And so
3 when we have an established understanding, now we
4 have a strong foundation a business and a
5 marketplace can grow.

6 I believe for South Carolina to grow,
7 it needs to understand what the rules will be for
8 an extended period of time so that investments can
9 be made. That's the goal that we have. I don't
10 know if I answered your question.

11 COMMISSIONER FLEMING: Well, let me
12 just -- well, I know there's a lot to be decided --

13 MR. GRANT REEVES [ORS]: Yeah.

14 COMMISSIONER FLEMING: -- in this
15 process.

16 MR. GRANT REEVES [ORS]: That's right.

17 COMMISSIONER FLEMING: It will be
18 interesting to move it forward and see how it all
19 works out.

20 MR. GRANT REEVES [ORS]: That's right.

21 COMMISSIONER FLEMING: And I think, as
22 you said, we have the advantage of other states
23 having struggled with these things as well.

24 Let me ask you this, we have had solar
25 panels, certainly maybe not to any large degree,

1 but for what maybe...

2 MR. GRANT REEVES [ORS]: Mr. Wood has
3 been doing it for 30 years.

4 COMMISSIONER FLEMING: Well, I think
5 2008 is when we did our net metering. So we
6 could -- there should be enough of those panels out
7 there to know what the effect of environment has
8 had on them and how they're holding up --

9 MR. GRANT REEVES [ORS]: Oh, yeah.

10 COMMISSIONER FLEMING: -- to that. Can
11 you talk a little bit about the experience thus
12 far?

13 MR. GRANT REEVES [ORS]: I'm probably
14 not the best person to answer that question, but
15 I'm not aware of any solar panels having a
16 premature life. They're designed for 20 years and,
17 in fact, even guaranteed for 20 years. So I think
18 the technology that you have today, these are going
19 to, you know, live their full intended life and I'm
20 sure the technology 20 years ago is inferior today
21 both efficiency and so forth. That is not a risk
22 that I hear very often, a technology risk.

23 COMMISSIONER FLEMING: Okay, very good.
24 Well, thank you again for a very interesting
25 presentation.

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1 MR. GRANT REEVES [ORS]: Thank you.

2 CHAIRMAN HAMILTON: Thank you.

3 Commissioner McGee.

4 COMMISSIONER MCGEE: Thank you,
5 Chairman. Thank you, Mr. Reeves. As always, I
6 really enjoy these ex parte hearings. A lot of
7 great stuff to learn. You mentioned several times,
8 talking about learning about solar and getting
9 involved in the industry. How would you say, or do
10 you know if -- how are our technical institutes
11 like Midlands Tech here in the Midlands? You know,
12 how are they either preparing or do they already
13 have programs to train folks to, you know,
14 manufacturer solar panels, be able to work on them?

15 I know they've been great with -- they
16 ran up a program for welding with V.C. Summer,
17 we're trying to get that nuclear welding
18 certificate. How have they been a part of this
19 discussion.

20 MR. GRANT REEVES [ORS]: Well, I would
21 say that they have not been directly involved in
22 the conversation. Mary Thornley at Trident Tech
23 and us have, you know, talked about a program when
24 it's time to start training those technicians.
25 But, again, you know, a marketplace has to sort of

1 be established in order for the technical schools
2 to provide the skill set. So I guess it's a little
3 bit of, you know, getting the cart ahead of the
4 horse at this point. But I know our institutions
5 would embrace it as they have the other skill sets
6 that we need to support industry in our state.

7 And, you know, I'm very confident the
8 skill set, whether it's, you know, mechanical,
9 electrical, these are really skill sets that are
10 already -- I mean, a lot of people will argue why
11 solar is such a good job creator, because it uses
12 skill sets we already have, traits that we already
13 know. So people can very quickly adapt to the new
14 technology if they have electrical training or
15 roofing training or mechanical training or even
16 construction in general.

17 So it's not a difficult skill set to
18 learn, but as we said earlier, you know, you're
19 dealing with something that safety is important and
20 so you need that certification to -- to ensure that
21 only qualified people are doing it.

22 COMMISSIONER MCGEE: Absolutely. Thank
23 you, sir. Just one last quick one. Based on
24 what's happened in other states, like say we --
25 assume we get the green light and we're able to --

1 where do you see the penetration hitting most of
2 it, on the utility side or the solar farms or do
3 you see a lot of residents trying to jump on? And,
4 you know, like you said, that they have to get --
5 need the conception of, hey, I'm going to lower my
6 bill if I do this. Where does the penetration seem
7 to hit first?

8 MR. GRANT REEVES [ORS]: I believe the
9 utility scale will be one area that will see
10 activity very quickly. If the tax credit amendment
11 passes, I think you'll see a number of rooftop
12 projects. That would be the 1 megawatt-and-under
13 scale. Those would be initiated very quickly.

14 On the residential, that's an
15 interesting dynamic. You know, the thought that
16 there's going to be some new rules, what do you
17 like, do you like the old rules you know or the new
18 rules you don't know? Might create a little bit of
19 a motivation for some people.

20 I think generally a lot of people are
21 watching solar. At the end of the day, if it
22 doesn't make economic sense, the numbers -- if the
23 numbers don't add up -- you know, I want to do the
24 right thing for the environment, I'd like to create
25 jobs, but, you know, it's our money -- you know,

1 the numbers have to add up. This legislation helps
2 make the numbers add up because it is a long view,
3 it's a 10-year view, and that is a different
4 decision than, I want to pay back in one year.

5 COMMISSIONER MCGEE: Thank you, Mr.
6 Reeves. Thank you, Mr. Chairman.

7 CHAIRMAN HAMILTON: Thank you very
8 much. I have a couple questions I want to throw at
9 you. You know, our Commission Staff and
10 Commissioners themselves are more aligned with the
11 southeast commissioners than we are from the nation
12 as a whole because we have more things together.
13 And some of the questions that we hear at some of
14 our SEARUC meetings have to do with reliability and
15 affordability, and those are the two big things
16 that any commission has to live and die by, to be
17 honest with you, every four years.

18 Let me ask you a couple of questions.
19 Storage seems to be the animal that's going to
20 allow storage to take a giant step. And we've
21 discussed that some today, we've discussed it in
22 all of our SEARUC meetings and it still is
23 something that we look back on and we don't rejoice
24 that we've got it today. How do you see that? How
25 do we move with it?

1 MR. GRANT REEVES [ORS]: With storage?

2 CHAIRMAN HAMILTON: Yes. I think
3 that's the -- that's the key, isn't it?

4 MR. GRANT REEVES [ORS]: Well, storage
5 increases that capacity factor that we spoke of
6 earlier.

7 CHAIRMAN HAMILTON: That's what you're
8 looking for with it?

9 MR. GRANT REEVES [ORS]: Well, it is,
10 but also, you know, there is a certain amount of
11 penetration that the grid can absorb. It's noise
12 on the grid. You know, Newport fires up one of
13 their burners, it's a huge demand jolt. You know,
14 more than a cloud covering up a solar farm. So the
15 grid can manage it. You know, what's important is
16 that the utility identifies the right locations for
17 the solar farms where they're on a large enough
18 demand load so that the intermittency is managed.

19 And certainly as the study that was
20 done in 2011 said, you know, 5 percent penetration,
21 the grid can absorb it. We're talking about 2
22 percent penetration here. So as long as it's
23 located in the right place, I think we can make
24 that step without risk and, at the same time, we
25 gain all of the experience that we need and, you

1 know, we're prepared so when battery storage comes
2 along, we're not, you know, still in the first
3 chapter when everybody else is in the third
4 chapter.

5 CHAIRMAN HAMILTON: Thank you. And the
6 next question that we hear a lot about is that in
7 the southeast, the land mass situation, that most
8 of our land is either under industrial development
9 land, forest land, or farm land. And it seems to
10 take an awful lot of land mass for a kilowatt of
11 solar. So what -- how do we stand on that? Is
12 rooftop as effective as solar farms?

13 MR. GRANT REEVES [ORS]: Well, I made
14 the point that, you know, the larger the scale, the
15 least cost --

16 CHAIRMAN HAMILTON: Right.

17 MR. GRANT REEVES [ORS]: -- and that is
18 an important part of the formula. So the number.
19 Land owners that I speak to are more than happy to
20 put their land to use.

21 CHAIRMAN HAMILTON: I understand that.

22 MR. GRANT REEVES [ORS]: So there's a
23 lot of unproductive land and we're not talking
24 about building these in urban centers. We're
25 talking about building these where land is

1 essentially underutilized. And if it provides
2 property taxes for those rural counties, I think
3 everybody is happy with that situation. You know,
4 we're not talking about, you know, carpeting the
5 southeast here. It's a good question. I want to
6 calculate how many square acres 300 megawatts is.
7 I guess I can do that almost in my head.

8 CHAIRMAN HAMILTON: Sounds like a few,
9 but these are some of the questions that we hear
10 and we need somebody like you that can give us the
11 answer because you aren't usually in our meetings.

12 So the next thing we talk about is job
13 development. And you earlier stated that the solar
14 industry is already ahead of coal which seems to be
15 losing ground now and solar seems to be gaining
16 ground with natural gas. But where are the solar
17 jobs? On the solar farm that you have in Colleton
18 County, how many people are assigned to that farm?

19 MR. GRANT REEVES [ORS]: As I said, we
20 don't employ anybody.

21 CHAIRMAN HAMILTON: That's what I
22 thought.

23 MR. GRANT REEVES [ORS]: Other than the
24 crew that comes out and mows the grass.

25 CHAIRMAN HAMILTON: Well, the solar

1 people that are employees are the ones that
2 create -- install the facility and sell the
3 facilities, and we don't have any maintenance and
4 things, any great extent of people in that area?
5 Because jobs is a big --

6 MR. GRANT REEVES [ORS]: You know, not
7 to a great extent, of course. Again, you know, I
8 think there's a maintenance routine that requires a
9 couple of visits a year on the equipment. It's
10 certainly on the development side. You know, we're
11 talking about engineers and surveyors and
12 environmental engineers. We have insurance
13 companies that get involved. We have finance
14 people that do that. So there's a support
15 industry. Of course, all of the laborers.

16 If we're fortunate to attract industry
17 to that state, then those would be job creators as
18 well, but that is not a lot of industry in this
19 state today. You know, the real -- the real
20 advantage is the people that supply it. You know,
21 Shealy Electric is an electric supply house; they
22 benefit from solar farms. Gregory Electric, they
23 had their engineers, their workers, their laborers.
24 Certainly the fence company, you know, got a job
25 out of it.

1 The -- we did -- we did our best effort
2 to hire as many South Carolina companies as we
3 could, and I'm proud to say -- you know, I don't
4 know the exact number, but more than 70 percent of
5 the labor came from South Carolina and so those
6 dollars were earned and spent in South Carolina.

7 CHAIRMAN HAMILTON: Well, I think these
8 are some of the stories that need to be heard more
9 than they are being heard.

10 MR. GRANT REEVES [ORS]: I agree.

11 CHAIRMAN HAMILTON: I think it'd make
12 it better because these questions that I'm asking
13 you always come up at these hearings and the
14 meetings that we have concerning these matters.
15 And when Mr. Scott introduced you, he said you were
16 the man with the answers and I think he was right.

17 MR. GRANT REEVES [ORS]: Thank you.

18 CHAIRMAN HAMILTON: I won't ask you all
19 the questions today that we have in the background,
20 but, again, I want to thank you for being here. We
21 appreciate it. You've given us a lot of food for
22 thought. And as the legislature goes down the
23 road, I'm sure we'll wind up being able to try to
24 carry out our part of it. We thank you very much.

25 Mr. Scott, your closing.

1 MR. DUKES SCOTT [ORS]: Yes, sir.
2 First, I want to address Commissioner Fleming's
3 issue. That is a big issue that has been
4 discussed. It was discussed -- and I'm talking
5 about cost shifting issue. It was discussed in the
6 EAC quite extensively, it was discussed in the EAC
7 report quite extensively, and it is taken care of
8 in this legislation. And the way it's taken care
9 of is, you all will make that ultimate decision.

10 The law does require that the Office of
11 Regulatory Staff, in conjunction with the utilities
12 and other interested parties, investigate and
13 report to this Public Service Commission the exact
14 issues that you were speaking of. And it's
15 58-27-1050, and I think Joseph might know how to
16 look that up; if he doesn't, he can call me and
17 I'll tell him.

18 But it's quite -- it's quite -- I
19 mean, it's a long paragraph, but by December 2015,
20 we will have to have a report to you and the
21 ultimate protector of that interest is the Public
22 Service Commission. And you'd be not surprised,
23 you'd be please, I think, to how many times it was
24 said that the Public Services Commission will take
25 care of that.

1 The Public Service -- I've heard
2 Mr. Reeves tell, actually, the out-of-state
3 people, our Public Service Commission will take
4 care of that. You're well respected and a lot of
5 the reason this legislation is proceeding is the
6 confidence that's in you to fix it. Because the
7 legislation can't impress every detail, but it
8 does impress that very well and we look forward to
9 your answer on that.

10 With that, Mr. Chairman, we appreciate
11 your time and attention. And I was right about
12 Mr. Reeves. I heard him speak several times. I
13 heard him speak for the judiciary subcommittee,
14 and when he did, I was sitting there and I said we
15 need him to present for ORS to you. And I went up
16 immediately after that and I said, Grant, will you
17 be our presenter? And he said -- and he's worked
18 very hard and you all have been attentive, we
19 appreciate that too. Thank you very much.

20 CHAIRMAN HAMILTON: We certainly feel
21 that our questions were very well -- we're very
22 appreciate of that. And, Mr. Corbett, we
23 appreciate you being here to keep us straight.
24 Thank you, sir. With that, we stand adjourned.

25 (The proceedings adjourned at 3:23 p.m.)

CERTIFICATE OF REPORTER

I, Christina L. Essi, Registered Professional Reporter and Notary Public for the State of South Carolina at Large, do hereby certify that the foregoing is, to the best of my skill and ability, a true and correct transcript of all the proceedings had and testimony adduced in an Allowable Ex Parte Proceeding held before THE PUBLIC SERVICE COMMISSION OF SOUTH CAROLINA in Columbia, South Carolina, according to my verbatim record of same.

IN WITNESS WHEREOF, I have hereunto affixed my official seal this 16th day of April, 2014 at Columbia, Richland County, South Carolina.

Christina L. Essi,
Registered Professional Reporter
My Commission expires
October 24, 2021

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